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DR. KENNION  
ON THE  
*Barrogate Waters.*  
5TH EDITION 1/-

151. c.

320.







OBSERVATIONS  
ON  
THE MEDICINAL SPRINGS  
OF HARROGATE.

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BY GEORGE KENNION, M.D.,

MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS.

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*Ἀριστον μὲν ὕδωρ.*

FIFTH EDITION.

LONDON:  
J. CHURCHILL, PRINCES STREET, SOHO;  
THOMAS HOLLINS, HARROGATE AND HARROGATE WELLS  
AND ALL BOOKSELLERS.

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151. c. 320.



## PREFACE

### TO THE FIRST EDITION.

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The following pages are not intended as a "Guide to the Harrogate Waters," nor as a "Hand-book" to the locality; and still less are they intended as a "Watering-place Puff." My object, in writing them, has been to place upon record, in as clear and concise a form as possible, a statement of the peculiar properties and effects of the various Springs with which Harrogate abounds; and in doing so, to endeavour to remove the erroneous impression, which too widely exists, that the Sulphur Water is *the only* source of attraction to Harrogate, and that the class of *cutaneous* diseases is that for which the Harrogate Waters are chiefly suitable. I have, as far as possible, avoided any digressions which were not necessary to the elucidation of my subject: while, at the same time, I have endeavoured to condense into a small compass the results of the experience, which a tolerably wide field of observation, during fifteen years, has afforded to me.

*Low Harrogate, March 4th, 1853,*



## PREFACE

### TO THE FIFTH EDITION.

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As I am called upon by my publisher to supply a fifth edition of this little book, I embrace the opportunity which is thus afforded to me, of expressing the gratification which I feel, in knowing that during the ten years which have elapsed since the first edition was published, the suggestions I then made have had the effect, which, in their publication, I was desirous that they should produce. I believe that Harrogate is much more resorted to as a watering place, and the patients who are sent here now, are not nearly so exclusively as was formerly the case, the subjects of cutaneous disease alone.

I may add a further remark, in opposition to a very prevalent idea, that the waters and baths of Harrogate are only useful, and even only applicable, in the summer months of July, August, and September. I can affirm with much confidence, that in a very large proportion of cases, as much benefit may be derived from the use of the waters during the winter and spring months as in the height of summer.

*Oak Lea, Harrogate, March 2nd, 1863.*

## OBSERVATIONS, &c.

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THE village or town of Harrogate is commonly divided into two parts, which are termed High and Low Harrogate. The greater part of what is called High Harrogate is built upon a high table land, which is elevated 420 feet above the level of the sea, and commands a magnificent and extensive view all around; while Low Harrogate is situated in a basin, which is bounded on the south and east sides by High Harrogate hill, and on the west by Harlow Hill. The upper stratum of the soil is sandstone, below this is a bed of shale (in some places of considerable depth), and below this again is a carboniferous limestone. The air of Harrogate is peculiarly pure and bracing, and, as is commonly remarked, possesses more of the freshness and elasticity of the sea air, than almost any other inland place; and to this, without doubt, in conjunction with the salutary effects of the waters, invalids are indebted for much of the improved health and strength which they obtain here.

The position, too, of Harrogate is such, that we may recognize, at least, two distinct climates; the air at Low Harrogate being comparatively mild, even when a strong and cool breeze may be blowing on the more exposed "common" at High Harrogate; while from the sandy nature of the soil, and the excellent drainage which has recently been carried out at a large expense, there are few days in the year, when the ground is not sufficiently dry for the most tender invalid to walk with comfort and safety. Of how great advantage this dryness of the soil must prove to invalids, I need not stop to remark: the advocates of sanitary reform will learn with interest that ague, as an indigenous complaint, is unknown here (proving the dryness of the climate); that cases of fever are rarely seen, and when occurring, being brought by strangers from a distance, the infection has rarely, if ever, been propagated; and that no single case of cholera has ever occurred here.

To these advantages may be added the *agrèmens* which meet the visitors to Harrogate, in a richly wooded, and, for the most part, well-cultivated country, abounding with hill and dale, with river and with stream, with the most splendid monuments of art and the richest glories of nature: all these form attractions of no common order; and, of themselves, would be sufficient to make Harrogate an eligible residence for those

who, for mere recreation, seek a change of air and scene. But, in fact, they are only accessories (accessories, however, of no mean order) to the more solid claims which Harrogate possesses for public favour.

I leave it to the writers of the local Hand-books, to describe the various objects of interest, with which Harrogate and its neighbourhood abound ; my object in the following brief sketch being simply this,—to impress the public mind with the knowledge that diseases of the skin are very far from being the only complaints which the Harrogate waters can remedy ; and that the Water of the Sulphur Well is only to be considered as *one* of the *many* varieties of mineral water, which Nature has more bountifully supplied to Harrogate, than to any other place, British or Continental, with which I am acquainted.

First, then, of the diseases to which the Harrogate waters are appropriate. There is a prevalent impression, even among those who ought to be better informed, that there exists a certain connection between diseases of the skin and the sulphur water, the former being the bane—which they most unquestionably are ; the latter, the antidote—which is a much less certain conclusion. The fact is, that diseases of the skin are a large and numerous group, depending upon a vast variety of different causes ; and it would be as unphilosophical, as it is hopeless, to expect

that one mode of treatment, of whatever description, could infallibly cure each and all of so large a tribe, differing in relation no less than in origin. I am the more anxious to impress this upon the reader's attention, because of the vast disappointment which is occasioned to numbers, owing to their ignorance of this fact. During the Harrogate season scarcely a day passes without my hearing this said, "I came here to drink the water for this troublesome disease of the skin; I have been here two, three, four, weeks: I have drunk so many glasses of the water; I have taken so many baths; and here I am worse than ever." I repeat it, this is a daily complaint, and I am sure, that every medical practitioner in the place can bear testimony to the truth of this assertion. And, why is this? Simply for the reason I have already given: that persons, who are afflicted with cutaneous diseases, believe that sulphur waters and sulphur baths are specific for their complaints, and they use this specific, according to their individual disposition, moderately or immoderately, as the case may be; and sometimes,—they get well; but not always. And why should they expect it?

A. B. has a scaly disease; C. D. has a scaly disease. In each case, the disease may have precisely the same appearance. A. B. has lived well, has indulged in all the pleasures of the table; life, to him, has been one scene of luxurious enjoyment, without one day of illness, with nothing

of care to annoy, or of business to harass him. But he finds one day, perhaps, upon his arm, a little white pimple, no larger than a pin's head ; and it grows larger and larger, and in a few days he finds another, and *that* grows larger and larger ; and then another, and another ; and, in the course of time, his arms and his body are covered with scales. Reverse the picture. C. D. is a laborious merchant. He rises up early, he late takes rest, he eats the bread of carefulness ; that bread, those meals, are snatched at irregular times, amidst the hurry of business which oppresses him : and whilst he is thus fevered, anxious, and careworn, it is vain to hope that food, so taken, can either be perfectly digested, or afford the nutrition which he requires. His strength, his spirits, and his powers of endurance fail him ; and he, too, finds a white spot, and another, and another ; and in time, he too is covered with a scaly disease.\*

Now, here we have the same external disease, possessing a peculiar, distinctive character, presenting itself in two men who lead such perfectly opposite modes of life, as must produce very opposite states of constitution. Is it to be supposed that the same mode of treatment can benefit A. B. and C. D. ?

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\* There are, of course, a variety of other causes producing the same disease ; I merely adduce these two, by no means uncommon cases, to illustrate my argument,

A. B. labouring under plethora and the utmost fulness of body ; C. D. suffering from a weak and broken down constitution, the effect of long-continued, and over-strained mental, and bodily exertion. The same marked difference is found in almost every other variety of cutaneous disease, between the causes which produce such disease, however similar the external appearance may be.

It would be entirely out of place, were I to attempt, in a short essay, such as this is, to enter into any minute account of the pathology of this class of diseases ; but I feel it my duty to place upon record the injury and the disappointment, which numbers have yearly entailed upon themselves, from the want of that knowledge which might have led to happier results. And I am hopeful, that in doing so, I may deter their successors from pursuing that empirical system which has done double harm—first to the sufferers, by confirming disease which other methods would assuredly have relieved ; and, secondly, to the reputation of the place, by the absence of that success which might, and in all probability would have attended those efforts, had they not been so ill directed.

For, be it remembered, although the same plan of treatment, whatever that mode may be, can never avail to cure disease of any kind indiscriminately, and without reference to its cause, whether the disease be cutaneous or not ;

yet there can be no question whatever that *sulphur waters and sulphur baths do cure (and cure better than any other mode of treatment) many* diseases of the skin; but, in order to produce this result, the propriety of their application to the particular disease must be first ascertained, and then they must be used—both the one and the other, with caution and with judgment. Their applicability must be ascertained; for we have already seen that the disease of the skin is rarely to be considered as a disease *per se*, but, rather, as an accompaniment or symptom of internal disease, or, it may be, of disease of the blood: and the treatment, by means of sulphur water, may be wholly *inefficient* and *inapplicable*; where, for example, the powers of the system are reduced, and the necessity is evident for a mode of treatment which, by improving the quality of the blood, and the tone of the chylopoietic organs, will restore the vital powers, and improve the general nutrition of the system. And in such cases, it is satisfactory to observe how, under an altered mode of treatment directed to these ends, the strength, appetite, spirits, and healthy vigour return, and, *pari passu*, the cutaneous disease recedes.\* And these are the cases, where, as I shall shew presently, the saline chalybeate waters of this place, have a marked beneficial effect;

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\* An intelligent, and not unfavourable, Reviewer of a former Edition (*Critic*: August, 1853,) has remarked—"One of the most difficult problems in medicine is to ascertain the exact value of



acting upon the secretions, eliminating through their means much of noxious matter, and directly, as well as indirectly, strengthening the system.

Cutaneous diseases, however, do but comprise a small portion of the list of those which may be treated with more or less certainty of benefit, by the medicinal waters of Harrogate : indeed, the foregoing remarks will have led the reader to question, how far the beneficial treatment of *most* cutaneous diseases, is to be attributed to any specific effect upon the mere disease of the skin ;

what are called medicinal springs. The salutary influence of a watering-place arising from the change of air and of habits, as well as of diet and regimen, the freedom from the fatigues and anxieties of business, or the dawn of hope which often sustains the mind of the patient after protracted suffering—these circumstances, so favourable to the return of health, all help to involve in uncertainty the precise amount of influence which the *mineral spring*, for which the place was sought, exercised in promoting the relief or the cure. Dr. Kennion has not thrown much light upon this main difficulty. As a physician of experience residing on the spot for fifteen years, he must be well acquainted with the subject, and his account of the matter, if defective (as all science must be more or less), must be accepted in lieu of a better.” Such cases as those quoted in the text are, I conceive, very fair specimens of what may be done, for good or evil, by mineral waters. An invalid has been taking for two or three weeks a certain water : he does not improve ;—on the contrary, his symptoms grow worse : at length he takes advice ; he learns that the water which he has been drinking has been increasing the severity of his symptoms : he is told to drink a different water :—but he continues the same diet, breathes the same pure air, has the same freedom from business, and soon he begins to recover, and feels the glow of health flowing through his veins. Here is an “*Experimentum Crucis*.” All other external circumstances remain the same—but the spring from which the patient drinks is changed—and he now rapidly recovers.

whether, in fact, the benefit to the latter, from treatment, is not to be traced to the *removal of the cause*, be that cause what it may ; and, I believe, in the vast majority of cases, this is the sound conclusion, to which a careful consideration of facts will lead us. We have here thus opened out to us a wide field for enquiry, and it becomes a matter of much interest to ascertain in what classes of disease, connected or unconnected with cutaneous eruption, these different waters may be made available ; and there can be no question, that the result of this enquiry will lead us to the conclusion, that a much larger number of diseases is curable by this mode of treatment, than is perhaps generally believed, even by members of our Profession. For if cutaneous eruptions are connected, as undoubtedly they are, with dyspepsia, bilious derangement, gout, rheumatism, plethora, anæmia, scrofula, uterine irritation, &c., &c., and if these eruptions, so connected, are cured by appropriate treatment directed to their various causes, then there can be little difficulty in advancing a step further, and expecting that in each of these cases, although unconnected with the superadded cutaneous affection, we shall find a similar mode of treatment successful ; and, accordingly, in practice, we find this expectation fully realized ; and I am able to say without hesitation, that there are very few cases of the above classes of disease, which may not be greatly benefitted, by the appropriate use of some one or more

of the medicinal springs, with which Harrogate abounds.

For what is dyspepsia ? and what is derangement of the liver ?\* They are both diseases of faulty secretion, or excretion, or both : the tendency of both complaints, under ordinary circumstances, is to increase, until that tendency is removed by treatment ; and such treatment, although it must be dietetic and hygienic, must also, most frequently, be eliminative : and there are few who will not prefer, that such a method of treatment should be by mineral water, compounded in nature's laboratory, rather than by potions and pills drawn from the stores of the apothecary. A proof how strongly this feeling is growing, in the opinion of the Profession no less than in that of the Public, may be adduced from the largely increased number of cases in which mineral waters are daily prescribed, in lieu of the old "blue pills and black draughts," by the most eminent physicians. (Let me not be mistaken. I do not depreciate the virtues of the *Materia Medica*—far from it. Medicine is *most useful* in its *proper place* ; but in cases—chronic cases, of dyspepsia, derangement of the liver, and the like—much more good (and much less harm) is gained by the evacuant, or alterative effects of mineral waters, than can possibly be procured by medicine.)

\* Of course I do not allude here to organic disease, but only to functional derangement.

And what are gout, and rheumatism, and scrofula, but diseases of the blood : *i. e.*, consisting in an unhealthy state of the blood, which, bearing through all its channels more or less of impure, noxious, poisonous matter, affects and infects, in the course of time, the nervous system, and the whole of the tissues of the body. And how can all this morbid, health-destroying matter be expelled from the system, but by the various excreting organs of the body—the bowels, the kidneys, the skin ; and how are these organs to be roused to fulfil the rapidly-accumulating task which devolves upon them ? Only by appropriate treatment ; and this treatment, as that of dyspepsia, must have reference to a system of diet and *régime* ; but must also be eliminative ; and, recollecting that such treatment must be steady, progressive, and gradual, the physician gladly avails himself of the opportunity of prescribing mineral waters, which produce precisely the effects which are required, more safely, more agreeably, and more certainly, than could have been accomplished by medicines. And in plethora and chlorosis, opposite states of the system as they undoubtedly are, still in each is there distinctly a poison circulating through the blood : and, as in the case of gout and rheumatism, this poison must be get rid of. And as this can only be effected by means of the various secretions of the body, we here again call in, with benefit, the aid of medicinal water.

Now, if, in this large variety of complaints, first, diseases of the skin; then, the various unhealthy states of constitution which, according to circumstances, may, or may not predispose to cutaneous disease, as gout, rheumatism, dyspepsia, bilious complaints, plethora. &c.,—if, I say, in this large variety of disease, benefit is found, in no limited degree, by treatment with medicinal waters, then I am justified in asserting that a very large field for such treatment is open to the medical practitioner; and when I add to this list other complaints, such as a large number of uterine diseases, chronic bronchitis (when unattended with disease of the heart), calculous deposits in the kidneys, and most disorders which arise from passive congestion, in all of which I have repeatedly seen the happiest effects from such treatment, then I may go further, and add, which I can do without hesitation, that there are *very few cases of chronic disease, (when unconnected with organic disease,) which may not be treated with success by some of the waters of this place.*

And this leads me to the consideration of the various springs with which Harrogate abounds.\* These, without wearying the reader with a description of the numerous varieties, I purpose to divide into four distinct groups.

\* Most of my readers will be surprised to learn that there are, at least, fifty-two different springs in Harrogate: many of them differing in their nature, all in the analysis.

- 1.—The strong sulphureous waters.
- 2.—The mild sulphureous waters with alkaline impregnations.
- 3.—The saline chalybeate waters.
- 4.—The pure chalybeate waters.

#### I.—STRONG SULPHUREOUS SPRINGS.

As the type of this class, and as being the spring chiefly resorted to, I mention the Old Sulphur Well, in the Royal Pump Room, and the Sulphureous spring, in the Montpellier Gardens. They are both largely impregnated with sulphuretted hydrogen gas, and contain large quantities of saline matter; and, also, iodine and bromine.†

The physiological effect of these waters is stimulant, aperient, alterative, diuretic, and in

†The following remarks, from the pen of the eminent geologist Mr. Phillips, F.R.S., will be read with interest: "The little rill which enters the Nidd below Ripley, draws part of its scanty supply from the many health-giving wells of Low Harrogate. These precious waters have their local origin determined mainly by the anticlinal axis of strata, which may be traced in the higher ground, west of Harrogate, between the millstone grit ranges of Ripton and Birk Cragg, which dip in opposite directions. The sulphuretted water of Harrogate, loaded with common salt, is an indication of a deep seated spring, rising under peculiar circumstances. The 'old well' is, in fact, a salt spring, with traces of iodine and bromine, as in sea water; and, possibly, there may be only one deep source for this water, and the spring east and west of it, as far as Harlow Hill, Starbeck and Bilton. The differences between these springs, in proportion of sulphates particularly, seem to be explicable as effects due to the different channels through which they reach the surface."—*Phillips's Rivers, Mountains, and Sea Coast of Yorkshire*. 1853, p. 71.

some cases, powerfully sedative, and hence, the field of disease upon which their therapeutic action may be brought to bear, is very wide : for how few chronic cases are there of functional disorder which are not amenable to one or other of these eliminating processes. To stimulate the secernent glands—to rouse the torpid energy of the absorbent vessels, to unload the intestinal viscera, and free the portal system of veins from their obstructed contents—these are the fundamental principles upon which the Physician has in such cases to build his superstructure of a healthy renewal of the powers of life : and these are the effects which follow a judicious use of the Sulphureous Waters : and it is because they thus strike at the root of the disorder of the healthy functions which is productive of so much of disease, that these waters produce so great an amount of good. There are few diseases, as a class, which are more benefited by these waters (or, in some cases,—the saline Chalybeate waters to be afterwards spoken of,) than gout or rheumatism. That this would be the effect of the waters upon diseases such as these, which are so pre-eminently “blood diseases,”—is what we might expect *a priori* : in this respect, I believe that Harrogate has no rival in this country, with the exception of Buxton : and it is not any degree of *amor patriæ* which leads me to consider her a very successful rival of a place, which has so deservedly high a reputation for its power of curing these frequent, and serious complaints, but the fact, that I have

witnessed so many satisfactory instances of the value of the Harrogate springs in cases of the most obstinate description. Perhaps to give to each place its proper due, it might be right to add that, as far as I am able to judge, the difference between the two places is this, that while Buxton deals with the *past*, Harrogate deals with the *future*: I believe there are a large number of old rheumatic and gouty swellings which are more entirely removed at Buxton than here: but on the other hand I do not think that the waters at Buxton have, so certainly, or so satisfactorily as the Harrogate waters, the effect of so altering the habit of the constitution, as to diminish the tendency to a return of these complaints.

There is another, and a large class of cases, in which it appears probable that much good may result from a modified use of the stronger sulphureous waters; viz:—in certain forms of chest complaints. It has long been known that in certain affections of the chest the action of sulphur is often beneficial; the *modus operandi* of this remedy in such cases is not perhaps very evident: but recently, M. Claude Bernard has proved by a variety of experiments,\* that when sulphuretted hydrogen is injected into the venous system, it is almost immediately, and almost entirely eliminated by the lungs: and so constantly is this the case, that it may fairly be asked whether such elimination is in any way related to

\* Archives Generales. Tom. ix., p. 121



the therapeutical effects just noticed. To a certain extent a reply to this question may be found in the result of an extended series of observations made by M. Grimaud, on the effects of Mineral Waters in cases of Pulmonary Consumption. It would occupy too much space were I to transcribe the cases which M. Grimaud relates, as bearing upon this important point: but a resumé of these cases will be so interesting to the Profession, and is in itself so valuable that I need offer no apology for translating it. After noticing the observations of M. M. Borden, Andrien, Cazalas and others, he draws from their, and his own cases, the following conclusions:—\*

“1.—Mineral Waters, although they do not constitute a specific treatment in pulmonary consumption, exceed in efficacy the numerous remedies which have as yet been used in this disease.

2.—They may, at the commencement, completely eradicate this deplorable malady, or at least render it stationary during many years. In the second stage, the chances of success are less. In the third stage, their employment is generally injurious.

3.—The waters whose action in these cases is incontestably recognised, belong especially to the class of *sulphureous* waters: and of this class those seem preferable which are also *brackish* and *alkaline*.

\* L'Union Médicale. Tom. xi., No. 77.

4.—The sphere of action of merely saline waters, such as those of Ems, in these cases is much more restricted."

I need hardly point out how fully the stronger sulphureous waters of Harrogate answer to the character of those, which in the Pyrenees, have been found so beneficial in pulmonary cases. "*Sulphureous*, — *Brackish*, — *Alkaline*;" and I hope that the mention of these important observations may induce Physicians in this country, to place in the hands of the Profession in Harrogate, the opportunity of confirming these remarkable statements.

There is another very common complaint of the air passages, in which sulphureous waters are eminently serviceable, a complaint common to all public speakers, and which is commonly known as "Clergyman's sore throat." I have seen cases of this description very greatly benefited by the use of these waters.

Powerful for good, however, as are the sulphur waters, when properly administered, they are no less dangerous when improperly taken. No year, unfortunately, passes without carrying off some victims to their own imprudence, who, in the hope of more speedy benefit, take large and unmeasured supplies of this water, and thus precipitate the fate which they were only too anxious to avert. A very short time has elapsed since this occurred to a most gallant and distinguished officer. He came here to drink the waters for some slight com-

plaint, and in the course of two or three days, he drank a quantity which ought to have been the supply for as many weeks. The effect was to produce an apoplectic seizure, which rapidly proved fatal. \*

These waters, like all the other medicinal springs at Harrogate, are cold. They are generally, however, taken warm, being heated artificially, in a manner which does not impair their virtues. The most satisfactory mode of warming them, is to have a small quantity of very hot water at 210° or 212° added to the cold water, and the whole should be drunk immediately, if the aperient action is desired; but when their alterative action is wished, they are generally taken cold.

It is not, however, only when taken internally that these waters are useful. They are no less valuable for warm bathing in many forms of cutaneous disease, in gout, and rheumatism, scrofula, and in most cases where, with feeble circulation on the skin, there is a tendency to congestion of the abdominal viscera.

Some people use this water in the form of shower bath. I allude to this, merely for the purpose of expressing my opinion as to its entire inefficacy, in any way in which the plain shower bath is not equally useful; but this allusion affords me the opportunity of mentioning the benefit which delicate persons experience by using the

\* This was written ten years since: I regret to add now—in 1863, that no season has since passed, without adding a list of fresh disasters of this kind.

tepid shower bath immediately after the warm bath. It has the effect, most frequently, of entirely preventing that relaxation after warm bathing which such persons so often experience; and the knowledge of this is valuable, as shewing that many invalids may, with this addition, use the warm bath to whom, otherwise, it would be denied.

## II. — MILD SULPHUREOUS SPRINGS WITH ALKALINE IMPREGNATIONS.\*

These waters contain sulphuretted hydrogen in smaller quantities than the preceding group, while the character of the saline impregnation differs: in the former group the characteristic ingredient being muriate of soda: in that under consideration being chiefly alkaline; and hence the advantage of these springs, which may, in their effects upon the constitution, be described as diuretic, antacid, alterative, and deobstruent. Thus: E. F. comes here, requiring the medicinal action of the sulphur water. He has, perhaps, a cutaneous disease, or his liver is out of order; but he has a red glazed tongue, and has long been subject to diarrhœa. The mucous membrane of his bowels, from chronic inflammation, is so sensitive that he cannot take the smallest quantity of

\* There are three springs of this kind in Low Harrogate, two of which are valuable—one in the Montpelier Gardens, the other at the Victoria Baths, while a third (the Hospital Mild Sulphur Spring—or, so called Magnesia water) has lately been brought through Wedgwood pipes into the Royal Pump Room.

aperient medicine, without violent action upon the bowels being produced. In such a case, the strong sulphur water is worse than useless; it is most injurious, and adds a hundredfold to the original complaint. But, with the aid of these waters, we are able to introduce sulphur into the system *gently*, while the alkaline impregnation is what we could most wish for, in reference to that very inflamed condition of the mucous membrane, which forbids the use of the stronger water.

Or, take another case. G. H. has suffered from long-continued irritation of the kidneys, caused by calculous deposit in some part of their structure. How common such cases are, is well known. Here, there is a double object to be obtained—curative and preventive. A copious and increased secretion from the kidneys frequently has the effect of mechanically washing away this deposit, and few remedies act so powerfully upon the kidneys as the waters which are now under consideration; while, the alkali which they contain, tends gradually to remove the acidity in the stomach and the blood, which predisposes to the formation of these calculous deposits.\*

Nor is the benefit which invalids derive from the external use of these waters, less marked than

\* As a remarkable proof of the value of the Waters, in such cases, I may mention what was said to me by a lady, seven or eight years ago, whom I recommended to take them for the relief of calculous irritation in the kidneys—"I have been at *Vichy*," she said, "every year, for six years, and in all that time I did not gain half the benefit which I have derived from the use of these waters for six weeks!"

that which, in suitable cases, attends their internal administration. Many are the cases of cutaneous disease, where the skin is in so highly inflamed and irritable a condition, that the stimulating effects of the stronger sulphur water, as a bath, cannot be borne, but in which, these waters have the effect of soothing the irritation, and affording relief. While the amateur bather, after enjoying a bath at Starbeck, may say with the Frenchman immortalized by Sir Francis Head, in his amusing and graphic description of the "Brunnens of Nassau," who exclaimed on coming out of the delicious bath at Schlangenbad, "*Monsieur, dans ces bains, on devient absolument amoureux de soi-même.*"

### III.—THE SALINE CHALYBEATE WATERS.

Of these there are two : one in the Cheltenham Pump Room, the other in the Montpellier Gardens.\*

The reputation of Harrogate as a spa was founded upon the curative properties of the Old Sulphur Well : a substantial foundation which has stood the test of nearly two centuries, and will prove a source of blessing to ages yet unborn ; but within the last twenty years, there have been brought under the public notice, and into very considerable use, the saline chalybeate waters of

\* It is remarkable how closely allied the latter of these springs is in its composition and nature to the analogous springs in Homberg, and at Kissingen,

this place; and more especially that one which rises in the Montpelier Gardens.

There is a very large, and an increasing number of cases during the last thirty or forty years, in which the tone and powers of the system are greatly below the standard of health: cases which are characterized by abdominal fulness, general venous turgescence, a deficiency of red globules in the blood, and a consequently depressed, because an insufficiently nourished, condition of the nervous centres: in such cases as these, if inflammation or fever supervene, there is much excitement but no power: remedial agents of a depletory character which, half a century ago, would have been indispensable to the cure of such cases, are now as a general rule utterly inadmissible: and the lancet and the leech have given place to ammonia and brandy.\* When this condition of the constitution exists, I need hardly add, that all disease, of every kind, is more or less modified by it: and it becomes therefore a point of great consequence both to recognize its existence, and to remove it.

I believe that *the original cause* of this Dyscrasia consists, very frequently, in a deficient action of

\* This is not the place to enter into the remote cause of so remarkable a circumstance; but it would not be difficult to demonstrate a close connexion between the change of the human constitution, and the blighting influence of an atmosphere loaded with pestilence, upon the brute and vegetable creations. The same intolerance of active treatment has been, for many years, observed by the most intelligent veterinary surgeons, and the blight of the potato plant is fresh in the sorrowful recollection of all.

the liver, producing congestion of its cells, and subsequently of the whole of the portal system : as a consequence of this—digestion goes on imperfectly, a considerable quantity of bile is taken into the blood, without being properly altered in the blood, (as is the case in health); the great nervous centres are imperfectly nourished by blood which is thus loaded with unhealthy matter, the various functions, secretion, absorption, &c., are, consequently, insufficiently performed : and in this way step by step the whole system becomes poisoned.

Two or three doses of aperient medicine will give in such cases a certain amount of relief : but if aperient medicines are continued for any length of time, they only tend to reduce the powers of the constitution to a still lower ebb :—and here it is that these waters, (and especially the spring in the Montpelier Gardens, which from the similarity of its composition to that of the Ragozzi at Kissingen, is known in this place as “Kissingen water,”) are found so useful; being both aperient, diuretic, and chalybeate, their remedial action is three fold ; they act powerfully upon the bowels, and in this way help to clear out the liver, and to unload the portal system ; by their action upon the kidneys they remove much of what—if not removed—is a source of poison to the system, while by the iron which they contain, they tend directly to improve the character of the blood, and to build up the tone of the system.



I will adduce one or two examples of cases which are of every day occurrence.

Thus : I. J. has long been subject to gouty pains flying about him, with great disturbance of the digestive organs. He is a barrister, perhaps, who for hours breathes the impure air of a crowded court, and wastes the midnight oil in his arduous studies ; but he has not sufficient power to throw off the gout, and from the accumulation of the poison of gouty matter on the one hand, and the imperfect digestion and assimilation which take place on the other hand, his health breaks down, and the man of vigorous mind and body is reduced to the condition of a mere child. This is no uncommon case ; but how is such a case to be treated ? To expel the poisonous matter from the system is clearly essential ; but if this is done by any means that lower and reduce the strength, the patient is only made worse. Now, it is just in such a case as this that the Saline Chalybeate water acts so beneficially.

Or, take another very common case. K. L. has enjoyed good health, and has taken abundance of food, and abundance of exercise ; he is addicted to field sports, which he follows with intense ardour. Active, energetic, youthful, he laughs at fatigue, and is inured to long fasting. But one day, after a hard and long run with the hounds, or after a fatiguing day on the moors, he comes

home more tired than usual, and, to use his expression, is "off his feed." He, perhaps, has a restless night, and the next day he feels a degree of *malaise*, which is new to him ; he still continues, however, to follow his favourite sports ; but he loses the zest for them, and comes home before the day is over, and at last gives them up altogether. This perfect change in his habits gives rise to an altered state of the secretions, which, never out of order before, become torpid and irregular ; his spirits become depressed, everything is a burden to him ; all around him is changed from a pleasant *couleur de rose*, to an universal *couleur de jaune* ; trifles annoy him, and the kind anxieties of his friends are a perfect torment.

I take another case. M. N. has long suffered from bilious derangement. His habits are sedentary, his studies are deep and long continued ; so closely does he apply to them, that he does not allow himself the recreation and rest which nature requires. His bowels become confined, his liver is loaded with bile, the secretion from the kidneys is full of deposit ; and then he finds that he cannot apply his mind as he used to do ; his memory often becomes treacherous ; he sleeps, perhaps, when he would study : his nights are passed in sleepless restlessness, or, if he sleeps, that sleep is interrupted by dreams and nightmare, and he rises in the morning, feverish, unrefreshed, and his usual energy lost. He follows without en-

joyment and without interest, his ordinary avocations ; he becomes desponding, irritable, restless ; perhaps he has found out that much of this discomfort may be removed by "blue pill and black draught," and he rejoices in this happily-discovered remedy, and takes it again and again. But he begins to find that in order to produce the former charm, he must take this more frequently ; and then he finds that he must increase, and still increase the dose, until, at length, it ceases to give him the respite which he formerly enjoyed. He is now in every respect worse , and he experiences, in addition to his former complaint, the depressing, injurious effects which always attend the introduction of large quantities of mercury, and drastic medicines into the system.

This is no exaggerated description : it is the portraiture of a large class of patients : the benefit which such patients derive from the use of one or other of the two springs under our notice is very remarkable, and is no less satisfactory : and as, while in the leading elements of their constitution they resemble each other very closely, there is a considerable difference in the proportion of iron, and of saline matter which they contain, we have the additional advantage of being able to suit the particular spring, as well as the doses of either which we recommend, to the individual cases which come under our notice.

## IV.—PURE CHALYBEATE WATER.

These waters only contain iron in combination with carbonic acid gas ; they are most valuable in cases where pure chalybeates are required, but it is necessary that they should be taken with much caution, for they tend to stimulate the circulating system, and to check the various excretions, with the exception, perhaps, of that from the kidneys. I do not profess to enter into the list of cases in which these waters are required, for they are seldom taken regularly, excepting under advice ; I must, however, bear testimony to the excellent effect which they produce in cases where the use of iron in its pure state is desired.

I might have extended this essay to a much greater length ; I might have told of the health and renewed vigour which elderly people so frequently experience here, partly from the purity of the air, and partly from the improvement of the secretions which they obtain by the use of the waters, without the necessity for medicine ; I might have described many other varieties of complaints which are treated with benefit by these waters : I might have told of the relief to neuralgic complaints which patients obtain here ; of internal tumours dissipated, of the happy change of constitution which patients experience who are tormented with the present epidemic of boils ; I might have enlarged upon the varieties of baths :

the vapour bath, the fume bath, the douche bath, &c ; but thus to have filled in the picture, would have swelled this tract into a treatise, and would have led me to exceed my object, which has been merely to sketch an outline.

One remark, only, I would venture to make in conclusion, that I have advanced no opinions which are not the result of my own observation, and that I have not attempted, in any degree, to throw a false or exaggerated colouring upon the benefits which may be expected from the use of the Harrogate Waters. I believe that every year they are becoming more and more appreciated ; and if, by this endeavour to extend the knowledge of these benefits, I shall have led any to seek for health where so much may be obtained, my object will be realized.

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THE FOLLOWING EXTRACT FROM

PROFESSOR HOFFMAN'S REPORT

Of the Analysis of the Mineral Water of Harrogate, is inserted by the permission of the Committee.

## SULPHUR WATERS.

GRAINS OF SALINE CONSTITUENTS IN THE GALLON OF WATER.

	I. Old Sulphur Well.	II. Montpelier Strong Sulphur Well	III. Montpelier Mild Sulphur Well	IV. Hospital Strong Sul- phur Spring.	V. Hospital Mild Sul- phur Spring*	VI. Starbeck Sulphur Spa.
Sulphate of lime .....	.182	.594	12.104	5.166	1.215	.870
Carbonate of lime .....	12.365	24.182	20.457	25.560	19.794	6.960
Fluoride of calcium .....	trace.	trace.	trace.	trace.	—	faint trace.
Chloride of calcium .....	81.735	61.910	—	—	—	—
Chloride of magnesium .....	55.693	54.667	17.140	11.595	.336	—
Carbonate of magnesia .....	—	—	3.251	5.797	10.310	6.390
Chloride of potassium .....	64.701	5.750	3.975	10.751	24.970	—
Carbonate of potassa .....	—	—	—	—	—	12.207
Chloride of sodium .....	866.180	803.093	232.413	369.014	220.630	121.798
Bromide of sodium .....	trace.	—	trace.	trace.	trace.	trace.
Iodide of sodium .....	trace.	—	trace.	trace.	trace.	trace.
Sulphide of sodium .....	15.479	14.414	3.398	7.155	.301	1.711
Carbonate of soda .....	—	—	—	—	—	5.133
Ammonia .....	trace.	trace.	trace.	trace.	trace.	trace.
Carbonate of iron .....	trace.	trace.	trace.	1.060	trace.	trace.
Carbonate of manganese .....	trace.	trace.	trace.	trace.	trace.	trace.
Silica .....	.246	1.846	.165	.535	1.49	1.753
Organic matter .....	trace.	trace.	trace.	1.327	trace.	1.740
Total .....	1096.581	966.456	292.903	437.960	279.045	157.562

\* Commonly known as Magnesia water.

TOTAL VOLUME (IN CUBIC INCHES) OF  
SULPHURETTED HYDROGEN IN THE GALLON.

I.—Old Sulphur Well.....	26.9
II.—Montpelier Strong Sulphur Well.....	25.4
III.—Montpelier Mild Sulphur Well.....	5.262
IV.—Hospital Strong Sulphur Spring.....	10.888
V.—Hospital Mild Sulphur Spring.....	3.54
VI.—Starbeck Sulphur Spa.....	2.103

CHALYBEATE WATERS.

<i>Grains of Saline Constituents in the Gallon of Water.</i>				
	I. Montpelier Saline Chalybeate Water.	II. Cheltenham Saline Chalybeate Water.	III. Tewit Well.	IV. St. John's Well.
Sulphate of lime.....	—	—	.697	.307
Carbonate of lime.....	—	7.604	1.435	2.264
Fluoride of calcium.....	—	trace.	—	—
Chloride of calcium.....	159.278	51.629	—	—
Chloride of magnesium.....	35.635	34.027	—	—
Carbonate of magnesia.....	41.796	—	2.667	3.039
Chloride of potassium.....	11.383	27.410	1.323	—
Carbonate of potassa.....	—	—	1.057	.991
Chloride of sodium.....	656.838	158.840	.280	1.643
Bromide of sodium.....	trace.	trace.	trace.	—
Iodide of sodium.....	trace.	trace.	—	1.338
Carbonate of soda.....	—	—	—	trace.
Ammonia.....	trace.	trace.	1.358	.609
Carbonate of iron.....	2.790	4.627	trace.	—
Carbonate of manganese.....	trace.	trace.	1.450	trace.
Silica.....	.947	1.450	1.041	3.54
Organic matter.....	trace.	.282	.663	trace.
Total....	908.667	285.869	11.021	10.091

CUBIC INCHES OF THE GASES IN THE GALLON OF WATER.

	I. Montpelier Saline Chalybeate Water.	II. Cheltenham Saline Chalybeate Water.	III. Tewit Well.	IV. St. John's Well.
Carbonic acid.....	24.17	19.50	11.85	14.95
Carbonated hydrogen....	2.40	5.00	—	.15
Oxygen.....	.51	1.02	0.40	.67
Nitrogen.....	6.48		5.53	6.35
Total.....	33.56	25.52	17.78	22.12











